IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (currently amended) An integrated cross-switching unit, connected with a TDM (Time Division Multiplexing) line unit and a data service processing unit, wherein the integrated cross-switching unit comprises:

a bus identification module;

a cross-connecting module;

a mapping/de-mapping module;

an encapsulation/de-encapsulation module; and

a packet scheduling module; wherein

the bus identification module ~~is adapted to identify~~ identifies a traffic source by reporting a slot number corresponding to the data service processing unit and a unit type of the data service processing unit to a control unit via the data service processing unit and by identifying the type of a bus connected with the data service processing unit as a packet bus, ~~to~~ transmits traffic from the TDM line unit to the cross-connecting unit, and ~~to~~ transmits packets from the data service processing unit to the packet scheduling module;

the cross-connecting module ~~is adapted to~~ schedules time slots of the traffic from the TDM line unit;

the mapping/de-mapping module ~~is adapted to~~ de-maps the traffic from the cross-connecting module, and to map traffic from the encapsulation/de-encapsulation module;

the encapsulation/de-encapsulation module ~~is adapted to~~ de-encapsulates the traffic from the mapping/de-mapping module, and ~~to~~ encapsulates the packets from the packet scheduling module; and

the packet scheduling module ~~is adapted to~~ schedules the packets from the encapsulation/de-encapsulation module and/or the bus identification module, and ~~to~~ transmits the scheduled packets to the data service processing unit via the packet bus or to the TDM line unit via the encapsulation/de-encapsulation module, the mapping/de-mapping module and the cross-connecting unit in turn.

2. (original) The integrated cross-switching unit according to claim 1, wherein a plurality of physical channels are configured between the mapping/de-mapping module and the encapsulation/de-encapsulation module, and between the encapsulation/de-encapsulation module and the packet scheduling module.

3. (original) The integrated cross-switching unit according to claim 2, wherein the plurality of physical channels are configured with different encapsulation protocols respectively.

4. (currently amended) The integrated cross-switching unit according to claim 2, wherein for ~~the~~ GFP (Generic Framing Procedure) frames from different physical channels, the encapsulation/de-encapsulation module finds a CID (Channel ID) field in the extended header of each GFP frame and directly forwards the data GFP frame with the CID field into the corresponding physical channel.

5. (currently amended) An integrated cross-switching unit, which is connected with a TDM (Time Division Multiplexing) line unit and a data service processing unit, wherein the integrated cross-switching unit comprises:

a bus identification module;

a high-order cross-connecting module;

a high-order mapping/de-mapping module;

a high-order encapsulation/de-encapsulation module;

a high-order packet scheduling module;

a low-order cross-connecting module;

a low-order mapping/de-mapping module;

a low-order encapsulation/de-encapsulation module; and

a low-order packet scheduling module; wherein

the bus identification module ~~is adapted to identify~~ identifies a traffic source by reporting a slot number corresponding to the data service processing unit and a unit type of the data service processing unit to a control unit via the data service processing unit and by identifying the type of a bus connected with the data service processing unit as a packet bus, ~~to~~ transmits traffic from the TDM line unit to the high-order cross-connecting module, and ~~to~~ transmits packets from the data service processing unit to the high-order packet scheduling module;

the high-order cross-connecting module ~~is adapted to~~ schedules the traffic as required for low-order processing to the low-order cross-connecting module, and ~~to~~ performs high-order scheduling on time slots of the traffic from the TDM line unit;

the low-order cross-connecting module ~~is adapted to~~ performs low-order scheduling on time slots of the traffic from the TDM line unit;

the high-order and low-order mapping/de-mapping modules ~~are adapted to~~ de-map the traffic from the high-order and low-order cross-connecting modules correspondingly, and to map traffic from the high-order and low-order encapsulation/de-encapsulation modules respectively;

the high-order and low-order encapsulation/de-encapsulation modules ~~are adapted to~~ de-encapsulate the traffic from the high-order and low-order mapping/de-mapping modules correspondingly, and ~~to~~ encapsulate the packets from the high-order and low-order packet scheduling modules respectively;

the high-order packet scheduling module ~~is adapted to~~ schedules the packets from the high-order encapsulation/de-encapsulation module and/or the bus identification module and to transmit the scheduled packets to the data service processing unit via packet bus or to the TDM line unit via the high-order encapsulation/de-encapsulation module, the high-order mapping/de-mapping unit, and the high-order cross-connecting module in turn;

the low-order packet scheduling module ~~is adapted to~~ schedules the packets from the low-order encapsulation/de-encapsulation module and to transmit the scheduled packets to the TDM line unit via the low-order encapsulation/de-encapsulation module, the low-order mapping/de-mapping unit, and the low-order cross-connecting module in turn.

6. (currently amended) A traffic scheduling method, comprising the steps of:

A) a bus identification module identifying a traffic source by reporting a slot number corresponding to the data service processing unit and a unit type of the data service processing unit to a control unit via the data service processing unit and by identifying the type of a bus connected with the data service processing unit as a packet bus, transmitting

traffic from ~~the~~ a TDM (Time Division Multiplexing) line unit to a cross-connecting module, and going to step B); and transmitting packets from a data service processing unit to a packet scheduling module via packet bus, and going to step E);

B) the cross-connecting module scheduling the traffic from the TDM line unit, and going to step E);

C) a mapping/de-mapping module de-mapping the traffic from the cross-connecting module and mapping traffic from an encapsulation/de-encapsulation module;

D) [[an]] the encapsulation/de-encapsulation module de-encapsulating the traffic from the mapping/de-mapping module and encapsulating the packets from the packet scheduling module; and

E) the packet scheduling module scheduling the packets from the encapsulation/de-encapsulation module and/or the bus identification module, and [[;]] transmitting scheduled packets to the data service processing unit via packet bus, or to the TDM line unit via the encapsulation/de-encapsulation module, the mapping/de-mapping module, and the cross-connecting module in turn.

7. (canceled)

8. (previously presented) The method according to claim 6, further comprising:

the TDM line unit and the data service processing unit copying the traffic to a first integrated cross-switching unit and a second integrated cross-switching unit which have the same function and structure to implement the same scheduling;

if the first integrated cross-switching unit and the second integrated cross-switching unit are both normal, the TDM line unit and the data service processing unit receiving the traffic from the first integrated cross-switching unit and the second integrated cross-switching unit, and selecting either of the traffic to implement a processing;

if either of the first integrated cross-switching unit and the second integrated cross-switching unit goes wrong, the faulted integrated cross-switching unit reporting to the control unit, and the control unit instructing the TDM line unit and the data service processing unit to select the traffic of the normal integrated cross-switching unit.

9. (previously presented) The method according to claim 6, further comprising:

the TDM line unit and the data service processing unit copying the traffic to a first integrated cross-switching unit and a second integrated cross-switching unit which have the same function and structure to implement the same scheduling;

the TDM line unit and the data service processing unit receiving the traffic from the first integrated cross-switching unit and the second integrated cross-switching unit, determining whether the two traffic is normal, and selecting either of the traffic to implement a processing if the two traffic is both normal; if either of the traffic is abnormal, selecting the normal traffic.

10. (previously presented) The method according to claim 6, further comprising:

the TDM line unit and the data service processing unit allocating the traffic to a first integrated cross-switching unit and a second integrated cross-switching unit which have the same function and structure to implement scheduling;

if the first integrated cross-switching unit and the second integrated cross-switching unit are both normal, the TDM line unit and the data service processing unit receiving the traffic from the first integrated cross-switching unit and the second integrated cross-switching unit to implement a processing; if either of the first integrated cross-switching unit and the second integrated cross-switching unit goes wrong, the faulted integrated cross-switching unit reporting to a control unit, and the control unit instructing the TDM line unit and the data service processing unit to switch the traffic allocated to the faulted integrated cross-switching unit to the normal integrated cross-switching unit.

11. (previously presented) The method according to claim 6, further comprising:

the TDM line unit and the data service processing unit allocating the traffic to a first integrated cross-switching unit and a second integrated cross-switching unit which have the same function and structure to implement scheduling;

the TDM line unit and the data service processing unit receiving the traffic from the first integrated cross-switching unit and the second integrated cross-switching unit and determining whether the traffic is normal;

if either of the traffic is abnormal, switch the traffic of the integrated cross-switching unit corresponding to the abnormal traffic to the normal integrated cross-switching unit.

12. (currently amended) The method according to claim 9, wherein the traffic allocated to the first integrated cross-switching unit and the second integrated cross-switching unit has priorities; when either of the integrated cross-switching units goes wrong and needs traffic switching, ~~the~~ high-priority traffic substitutes ~~the~~ low-priority traffic under processing.

13. (currently amended) The method according to claim 10, wherein the service allocated to the first integrated cross-switching unit and the second integrated cross-switching unit has priority; when either of the integrated cross-switching units goes wrong and needs service switching, ~~the~~ high-priority ~~service~~ traffic can substitute ~~the low~~-priority ~~service~~ traffic under processing.

14. (previously presented) The integrated cross-switching unit according to claim 1, wherein the TDM line unit is a synchronous digital hierarchy or synchronous optical network line unit.